

WHAT IS CLAIMED IS:

1. Process for the preparation of a potential energy bioreactor for processing
5 a reagent in feedstock selected from the group consisting of non-aqueous and aqueous
feedstocks with, reactant particles adsorbed therein; which comprises:

a) providing a flow pathway in said bioreactor having at least one
surface,

b) feeding to said flow pathway, reactant particles and at least one
initial reagent reactable therewith during their passage through said flow pathway in
such a manner that an energy potential difference is generated between the beginning
of said flow pathway and its end, and said reactant particles become polarized whereby the
polarized particles adhere to each other and become immobilized within said flow
pathway.

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2. The method of claim 1 wherein said reactant particles and said at least one
initial reagent are fed to said bioreactor until the surface or portions of the surface
15 thereof in said flow pathway is coated with a plurality of layers of said reactant particles.

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3. The method of claim 1 wherein the flow pathway is a spiral pathway.

4. The method of claim 1 wherein said reactant particles and said at least one initial reagent are fed to said bioreactor until reactant particles adhere to the surface thereof.

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5. The method of claim 3 wherein the reactant is a biocatalyst.

6. The method of claim 5 wherein the biocatalyst is aerobic or anaerobic.

10 7. The method of claim 6 wherein said biocatalyst is selected from the group consisting of enzymes, bacteria, organelles, yeasts, leucocytes, hemocytes and fungi.

8. The method of claim 1 wherein the feedstock is aqueous.

9. The method of claim 1 wherein the feedstock is non-aqueous.

10. The method of claim 1 wherein said at least one initial reagent is the reagent in the feedstock to be processed.

20 11. The method of claim 8 wherein the reactant is aerobic bacteria and said at least one initial reagent is an oxidizing agent.

12. The method of claim 11 wherein the reactant is aerobic bacteria and said at least one initial reagent is oxygen.

5 13. The method of claim 11 wherein the reactant is activated sludge.

14. The method of claim 13 wherein the reactant is activated sludge screened to have a particle size of less than 300 microns.

10 15. A potential energy bioreactor for reacting feedstock with reactant particles immobilized in the flow pathway thereof produced in accordance with the method of claim 1.

15 16. The bioreactor of claim 15 wherein the flow pathway is a spiral pathway.

16 17. A method of processing one or more components of a feedstock which comprises feeding said feedstock to a bioreactor of claim 15.

20 18. The method of removing phenolic components from aqueous feedstock which comprises feeding said feedstock to a bioreactor, of claim 15.

19. The method of claim 18 which comprises recycling said feedstock through said bioreactor till no measurable amount of phenolic components is detectable.